

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

Claims 1-50 (Cancelled)

Claim 51 (Currently Amended) A process for producing unsaturated fatty acids, wherein said unsaturated fatty acid is at least one selected from the group consisting of arachidonic acid, dihomo- $\gamma$ -linolenic acid, 5,8,11-eicosatrienoic acid and eicosapentaenoic acid, ~~or a lipid containing them said unsaturated fatty acid,~~ which process comprises

culturing a microorganism belonging to the genus *Mortierella*, wherein the microorganism is selected from the group consisting of *Mortierella alpina*, *Mortierella elongata*, *Mortierella exigua* ~~or~~ and *Mortierella hygrophila*,

in a culture medium containing phosphate ions in the range of 5 to 60 mM, potassium ions in the range of 5 to 60 mM, sodium ions in the range of 2 to 50 mM, magnesium ions in the range of 0.5 to 9 mM, and calcium ions in the range of 0.5 to 12 mM, respectively,

to produce said unsaturated fatty acid ~~or a lipid containing said unsaturated fatty acid.~~

Claim 52 (Previously Presented) The process according to claim 51, wherein the unsaturated fatty acid is arachidonic acid.

Claim 53 (Previously Presented) The process according to claim 51, wherein the *Mortierella* microorganism is selected from the group consisting of *Mortierella exigua* and *Mortierella hygrophila*.

Claim 54 (Currently Amended) A process for producing unsaturated fatty acids, wherein said unsaturated fatty acid is at least one selected from the group consisting of arachidonic acid, dihomo- $\gamma$ -linolenic acid, 5,8,11-eicosatrienoic acid and eicosapentaenoic acid, ~~or a lipid containing said unsaturated fatty acid~~, which process comprises

culturing a microorganism belonging to the genus *Mortierella*, wherein the microorganism is selected from the group consisting of *Mortierella alpina*, *Mortierella elongata*, *Mortierella exigua* and *Mortierella hygrophila*,

in a culture medium containing phosphate ions in the range of 10 to 45 mM, potassium ions in the range of 10 to 45 mM, sodium ions in the range of 5 to 40 mM, magnesium ions in the range of 1 to 6 mM, and calcium ions in the range of 1 to 9 mM, respectively,

to produce said unsaturated fatty acids ~~or a lipid containing said unsaturated fatty acid~~.

Claim 55 (Previously Presented) The process according to claim 54, wherein the unsaturated fatty acid is arachidonic acid.

Claim 56 (Previously Presented) The process according to claim 54, wherein the *Mortierella* microorganism is selected from the group consisting of *Mortierella exigua* and *Mortierella hygrophila*.

Claim 57 (Previously Presented) A process for producing unsaturated fatty acids or a lipid containing said unsaturated fatty acids, which process comprises

culturing a microorganism belonging to the genus *Mortierella*

in a medium containing phosphate ions in the range of 5 to 60 mM, potassium ions in the range of 5 to 60 mM, sodium ions in the range of 2 to 50 mM, magnesium ions in the range of 0.5 to 9 mM, and calcium ions in the range of 0.5 to 12 mM, respectively, in the culture medium

to produce said unsaturated fatty acids or said lipid containing unsaturated fatty acids,

wherein said unsaturated fatty acid is at least one unsaturated fatty acid selected from the group consisting of arachidonic acid, dihomo- $\gamma$ -linolenic acid, 5,8,11-eicosatrienoic acid and eicosapentaenoic acid, and

wherein said *Mortierella* microorganism is selected from the group consisting of *Mortierella alpina*, *Mortierella elongata*, *Mortierella exigua* and *Mortierella hygrophila*.

Claim 58 (Cancelled)

Claim 59 (Previously Presented) The process according to claim 57, wherein the *Mortierella* microorganism is selected from the group consisting of *Mortierella exigua* and *Mortierella hygrophila*.

Claim 60 (Previously Presented) A process for producing arachidonic acid or a lipid containing said arachidonic acid, which process comprises

culturing a microorganism belonging to the genus *Mortierella*

in a medium containing phosphate ions in the range of 5 to 60 mM, potassium ions in the range of 5 to 60 mM, sodium ions in the range of 2 to 50 mM, magnesium ions in the range of 0.5 to 9 mM, and calcium ions in the range of 0.5 to 12 mM, respectively, in the culture medium

to produce said arachidonic acid or said lipid containing arachidonic acid,  
wherein said *Mortierella* microorganism is a species selected from the group  
consisting of *Mortierella alpina*, *Mortierella elongata*, *Mortierella exigua* and  
*Mortierella hygrophila*.

Claim 61 (Previously Presented) The process according to claim 60, wherein  
the *Mortierella* microorganism is selected from the group consisting of *Mortierella*  
*exigua* and *Mortierella hygrophila*.

Claim 62 (Previously Presented) A process for producing an unsaturated  
fatty acid or a lipid containing said unsaturated fatty acid, which process comprises  
culturing a microorganism belonging to the genus *Mortierella*

in a medium containing phosphate ions in the range of 10 to 45 mM,  
potassium ions in the range of 10 to 45 mM, sodium ions in the range of 5 to 40 mM,  
magnesium ions in the range of 1 to 6 mM, and calcium ions in the range of 1 to 9  
mM, respectively, in the culture medium

to produce said unsaturated fatty acid or said lipid containing unsaturated fatty  
acid,

wherein said unsaturated fatty acid is at least one unsaturated fatty acid  
selected from the group consisting of arachidonic acid, dihomo- $\gamma$ -linolenic acid,  
5,8,11-eicosatrienoic acid and eicosapentaenoic acid, and

wherein said *Mortierella* microorganism is a species selected from the group  
consisting of *Mortierella alpina*, *Mortierella elongata*, *Mortierella exigua* and  
*Mortierella hydrophila*.

Claim 63 (Cancelled)

Claim 64 (Previously Presented) The process according to claim 62, wherein the *Mortierella* microorganism is selected from the group consisting of *Mortierella exigua* and *Mortierella hygrophila*.

Claim 65 (Previously Presented) A process for producing arachidonic acid or a lipid containing said arachidonic acid, which process comprises

culturing a microorganism belonging to the genus *Mortierella*

in a medium containing phosphate ions in the range of 10 to 45 mM, potassium ions in the range of 10 to 45 mM, sodium ions in the range of 5 to 40 mM, magnesium ions in the range of 1 to 6 mM, and calcium ions in the range of 1 to 9 mM, respectively, in the culture medium

to produce arachidonic acid or lipid containing arachidonic acid,

wherein said *Mortierella* microorganism is a species selected from the group consisting of *Mortierella alpina*, *Mortierella elongata*, *Mortierella exigua* and *Mortierella hygrophila*.

Claim 66 (Previously Presented) The process according to claim 65, wherein the *Mortierella* microorganism is selected from the group consisting of *Mortierella exigua* and *Mortierella hygrophila*.